



**New Series of Heavy Duty Switches
IN73, MN78 and SRO**

The family of the heavy duty series

Position switches IN73 & MN78

Safety rope pull switch SRO

When it comes to safety in the industrial sector the BERNSTEIN products are a reliable and proven solution, especially the heavy duty series comprising of IN73, MN78 and SRO.

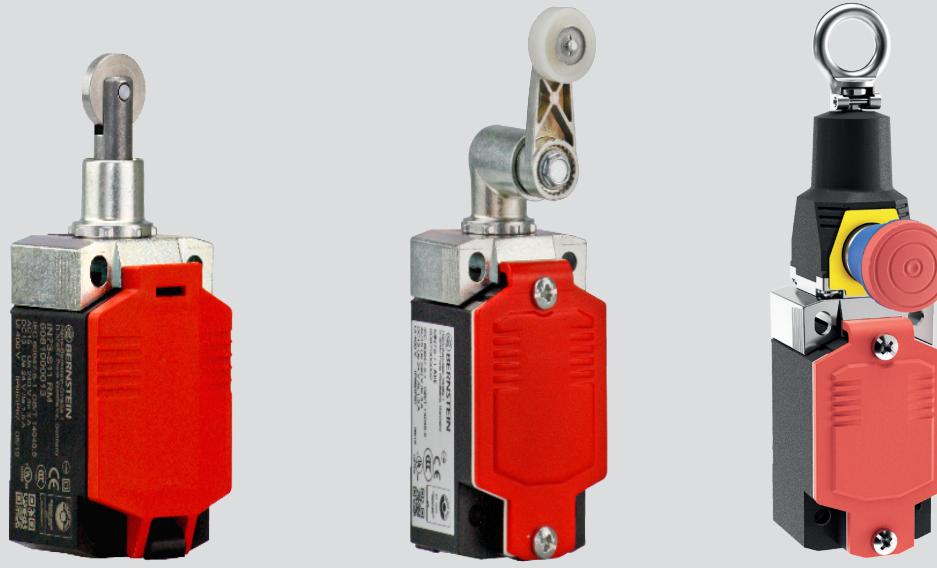
Position switches IN73 & MN78

Our new standard switch, the IN73, is the latest in our ENK-series. It offers a modular, robust enclosure and a wide range of actuators made of metal. In mechanical and plant engineering, it is used as a position and safety switch in rough environments as it features additional fixing holes to achieve a better installation. The "big brother" of the IN65, it has a similar modular design, however there is an important difference. Whereas the C14 switch insert has 2 contacts, the IN73 can be equipped with the C17 switch insert with 4 contacts.

The MN78 is the metal version of the IN73 and designed for the use in very rough environment. A modular, robust metal enclosure with a wide range of metal actuators. Just as with the IN73, the MN78 offers additional fixing holes for safe installation. It can be equipped with the C14 or C17 switch insert (2 contacts or 4 contacts). Rough environments, outdoor areas, or high mechanical loads are all no problem for the MN78.

Safety rope pull switch SRO

BERNSTEIN has now added a particularly small and compact version to the product family of safety rope pull switches. Thanks to its modular design, the new SRO (Safety Rope Pull) is extremely space-saving as well as being highly versatile. The modular principle has the advantage of always being able to offer exactly the right product for a specific customer application.



IN73

MN78

SRO

Approvals for IN73 & MN78:



Approvals for SRO: *in preparation*



Construction of the position switches IN73 & MN78



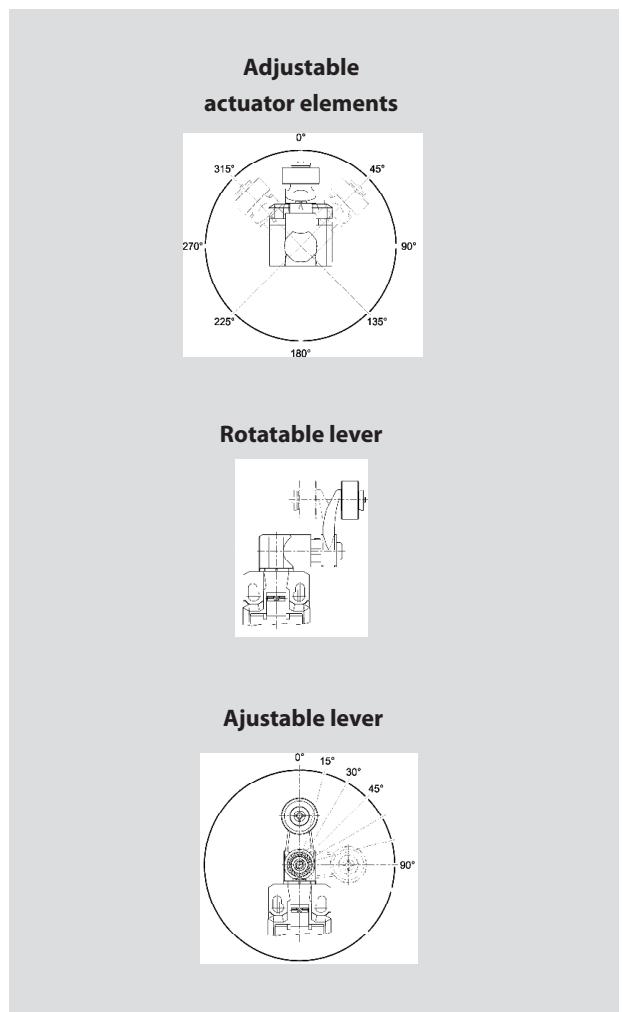
Actuators

The actuators are made of metal, some with plastic components making the actuators strong and sturdy.

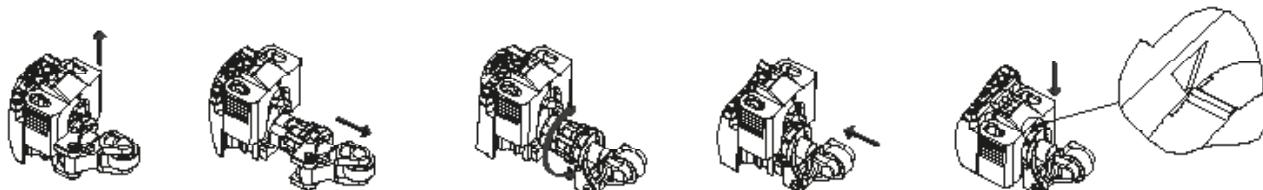
The actuators can easily be changed and rotated as required.

The modular design and the easy way to change the actuators allows for great variety of applications, for example for monitoring doors, hoods, and flaps, or for detecting the position of moving machine parts.

BERNSTEIN offers over 20 actuators for IN73 and MN78, which means there are more than 200 different combination options.



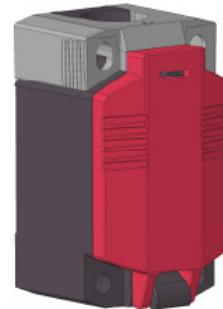
Rotate actuator



Housing

Thermoplastic housing

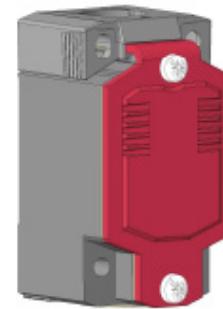
The IN73 housing is a hybrid because of the sophisticated fusion of metal and plastic components. Thus, all mechanically stressed components and also the mounting level of the switch are almost completely made of metal. A mechanical service life of up to 30 million switching cycles can be effortlessly assured. The lower housing area, on the other hand, is made of fibreglass-reinforced plastic, which also makes the IN73 economically attractive.



Metal housing

The MN78, on the other hand, is a completely metal version of the position switch that scores points for reliably fulfilling its task even in harsh environments, outdoors or under high mechanical stress.

Thanks to the IP66 and IP67 protection classes, the two switches are protected both against strong jets of water and against submersion.



We make
safety happen.



What's so special about the C14?

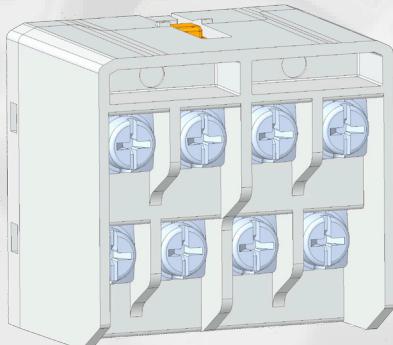
We installed a modern assembly line in our factory in Hille-Hartum to produce the new C14 switch inserts (1 NC/1 NO, 2 NC, 2 NO). The modular design of the line allows maximum flexibility for the production of all the different switch inserts. During the fully-automatic manufacturing process, all switch inserts are tested to ensure the highest quality. More than 800 switch inserts can be produced per hour.

The most important feature of the C14 switch insert is the encapsulated contacts. Production takes place in a clean-room environment to ensure that the contact surfaces are extremely clean, even during the assembly. And due to the encapsulated enclosure of the C14 switch insert, we can ensure that, even after the manufacturing process, no dirt or dust can contaminate the contacts. The switch can therefore handle very low currents of 1 mA at 24 VDC.

Besides C14, the C17 switch can be used for 4 contacts and has the same qualities.



C14 SWITCH INSERT



C17 SWITCH INSERT

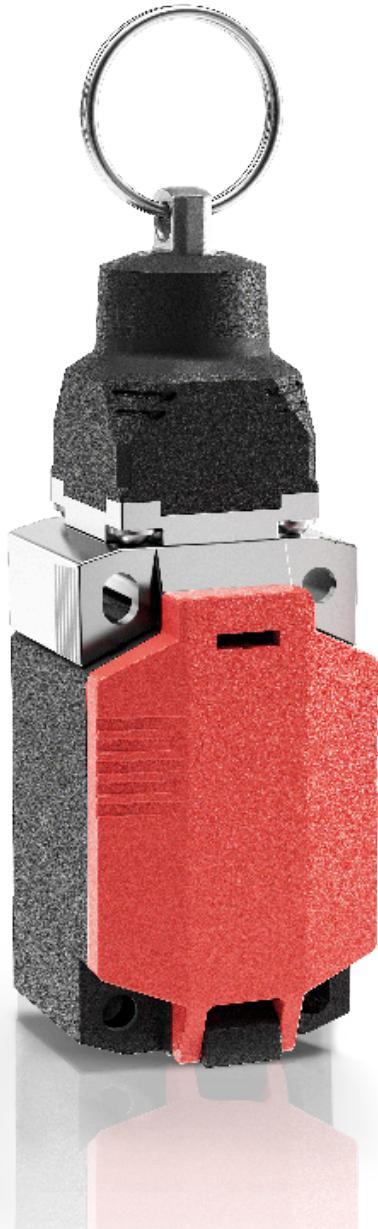
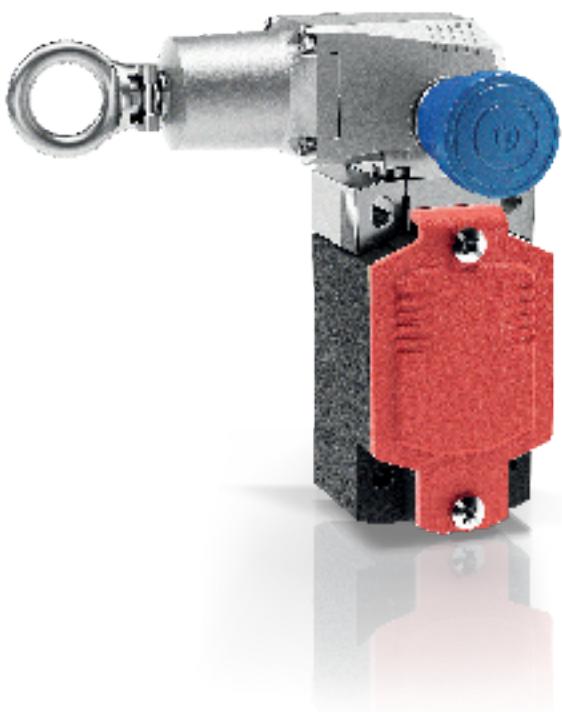
Safety rope pull switch

SRO

More safety on the production line

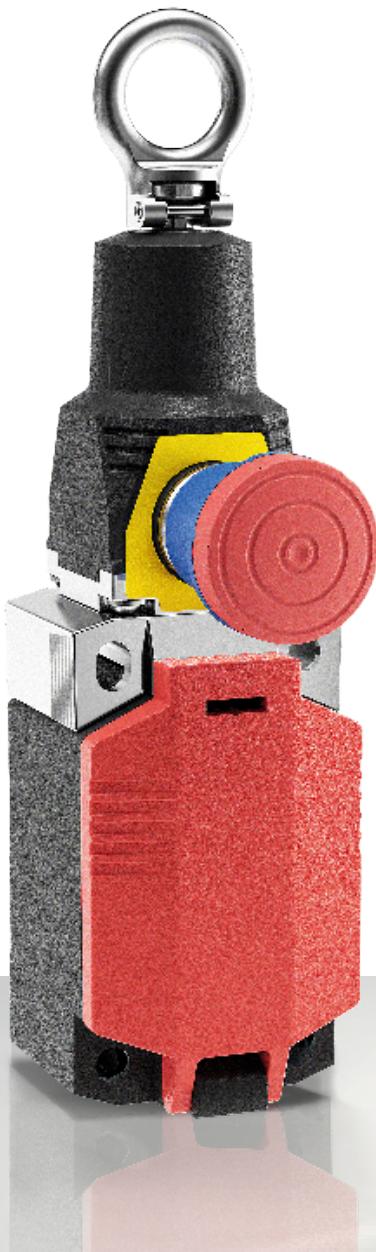
When it comes to maximum safety on the assembly line, in the production line, or directly at the machine, the Safety Rope Pull Switches from BERNSTEIN are a reliable and proven solution. BERNSTEIN has now added a particularly small and compact version to the product family of safety rope pull switches.

Thanks to its modular design, the new SRO (Safety Rope Pull) is extremely space-saving as well as being highly versatile. The modular principle has the advantage of always being able to offer exactly the right product for a specific customer application.



Product highlights

- As metal or thermoplastic variant – or as a combination of both
- Compact design for confined spaces
- Emergency stop button upon request
- Max. rope length of 30 m



Technical data

- Metal- or thermoplastic enclosure
- Up to 4 contacts
- Ambient temperature: -30° to $+75^{\circ}\text{C}$
- **Approvals:**



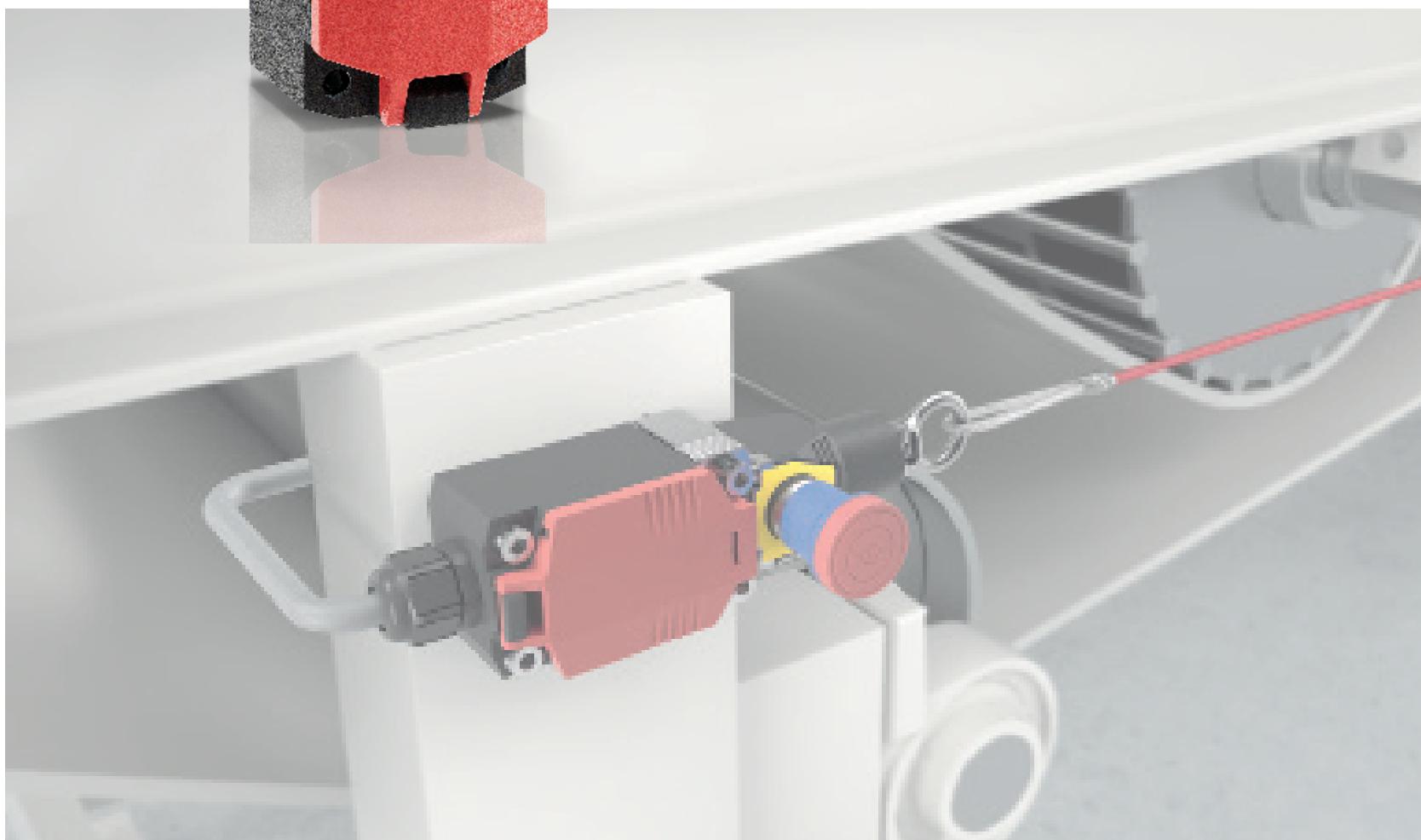
in preparation



in preparation



in preparation



Order details SRO – Safety rope pull switch

SRO-I73...VT...	Designation	Article number	System	Switching function
 without emergency stop	SRO-I73-11-VT30-1	6011811127	Slow action	1 NC / 1 NO
	SRO-I73-20-VT30-1	6011861128	Slow action	2 NC
	SRO-I73-22-VT30-1	6011821129	Slow action	2 NC / 2 NO
	SRO-I73-31-VT30-1	6011891130	Slow action	3 NC / 1 NO
Thermoplastic enclosure				
SRO-M78...VT...	Designation	Article number	System	Switching function
 without emergency stop	SRO-M78-11-VT30-1	6012811136	Slow action	1 NC / 1 NO
	SRO-M78-20-VT30-1	6012861137	Slow action	2 NC
	SRO-M78-22-VT30-1	6012821138	Slow action	2 NC / 2 NO
	SRO-M78-31-VT30-1	6012891139	Slow action	3 NC / 1 NO
Metal enclosure				
SRO-I73...VT...	Designation	Article number	System	Switching function
 with emergency stop	SRO-I73-11-VT30-2	6011811131	Slow action	1 NC / 1 NC - Emergency stop
	SRO-I73-20-VT30-2	6011861132	Slow action	2 NC - Emergency stop
	SRO-I73-22-VT30-2	6011821133	Slow action	2 NC / 2 NO - Emergency stop
	SRO-I73-31-VT30-2	6011891135	Slow action	3 NC / 1 NO - Emergency stop
Thermoplastic enclosure				
SRO-M78...VT...	Designation	Article number	System	Switching function
 with emergency stop	SRO-M78-11-VT30-2	6012811140	Slow action	1 NC / 1 NO - Emergency stop
	SRO-M78-20-VT30-2	6012861141	Slow action	2 NC - Emergency stop
	SRO-M78-22-VT30-2	6012821142	Slow action	2 NC / 2 NO - Emergency stop
	SRO-M78-31-VT30-2	6012891143	Slow action	3 NC / 1 NO - Emergency stop
Metal enclosure				

Order details SRO – Safety rope pull switch

Only with metal enclosure



without
emergency
stop



without
emergency
stop



with
emergency
stop



with
emergency
stop

SRO-M78...HL...	Designation	Article number	System	Switching function
	SRO-M78-11-HL30-1	6012811144	Slow action	1 NC / 1 NO
	SRO-M78-20-HL30-1	6012861145	Slow action	2 NC
	SRO-M78-22-HL30-1	6012821146	Slow action	2 NC / 2 NO
	SRO-M78-31-HL30-1	6012891147	Slow action	3 NC / 1 NO

SRO-M78...HR...	Designation	Article number	System	Switching function
	SRO-M78-11-HR30-1	6012811152	Slow action	1 NC / 1 NO
	SRO-M78-20-HR30-1	6012861153	Slow action	2 NC
	SRO-M78-22-HR30-1	6012821154	Slow action	2 NC / 2 NO
	SRO-M78-31-HR30-1	6012891155	Slow action	3 NC / 1 NO

SRO-M78...HL...	Designation	Article number	System	Switching function
	SRO-M78-11-HL30-2	6012811148	Slow action	1 NC / 1 NO
	SRO-M78-20-HL30-2	6012861149	Slow action	2 NC
	SRO-M78-22-HL30-2	6012821150	Slow action	2 NC / 2 NO
	SRO-M78-31-HL30-2	6012891151	Slow action	3 NC / 1 NO

SRO-M78...HR...	Designation	Article number	System	Switching function
	SRO-M78-11-HR30-2	6012811156	Slow action	1 NC / 1 NO
	SRO-M78-20-HR30-2	6012861157	Slow action	2 NC
	SRO-M78-22-HR30-2	6012821158	Slow action	2 NC / 2 NO
	SRO-M78-31-HR30-2	6012891159	Slow action	3 NC / 1 NO

Plastic enclosures

Position switches IN73



Technical design

- Slow- and snap-action
- Versions:
 - With C14 switch insert: 2 NC, 2 NO, 1 NC/1 NO
 - With C17 switch insert: 4 NO, 4 NC, 2 NO/2 NC

Mounting

- 2 oval holes for adjustment for M5 screws
- 2 round holes for M5 screws for fixing when used for safety applications

Technical data

Electrical data

Design insulation voltage	U_i max.	400 V AC
Conventional thermoelectric current	(up to) I_{the}	5 A
Rated operating voltage	U_e max.	240 V AC
Utilisation category (up to)	$AC-15, U_e/I_e$	240 V/3 A
	$DC-13 U_e/I_e$	24 V/1.5 A
Short-circuit protection (up to)		Safety fuse 4 A gG
Protection class		II, protective insulation

Mechanical data

Enclosure/Cover material	Thermoplastics, glass-fibre reinforced (UL 94-V0)
Ambient temperature	-30 °C to +75 °C
Mechanical lifetime (up to)	10×10^6 switching cycles
B10d NC Contact cycles (up to)	20 million
B10d NO Contact cycles (up to)	1 million
Switching frequency	≤ 60 /min.
Type of connection	4 screwed connections (M3)
Conductor cross-sections	Single-wire 0.5 – 1.5 mm ² or strand with wire-end ferrule 0.5 – 1.5 mm ²
Cable entry	1 x M20 x 1.5
Protection class	IP66/IP67 according to EN 60529; DIN VDE 0470 T1

Standards

VDE 0660 T211, DIN EN 60947-5-4, IEC 60947-5-4
DIN EN ISO 13849-1, DIN EN ISO 13849-2

1 Depending on switching system



Metal enclosures

Position switches MN78



Technical design

- Slow- and snap action

- Versions:

With C14 switch insert: 2 NC, 2 NO, 1 NC/1 NO

With C17 switch insert: 4 NO, 4 NC, 2 NO/2 NC

Mounting

- 2 screws M5, adjustment with oval holes
- 2 screws M5 for safety applications without additional fixation required

Technical data

Electrical data

Design insulation voltage	U _i max.	400 V AC
Conventional thermoelectric current (up to)	I _{the}	5 A
Rated operating voltage	U _e max.	240 V AC/24 V DC
Utilisation category (up to)		AC-15, U _e /I _e 240 V/3 A DC-13 U _e /I _e 24 V/1.5 A (B300 Table A.1)
Short circuit protection (up to)		Safety fuse 4 A gG
Protection class		II, protective insulation

Mechanical data

Enclosure material	Metal, glass-fibre reinforced (UL 94-V0)
Ambient temperature	-30 °C to +75 °C
Mechanical lifetime (up to)	30 × 10 ⁶ switching cycles
B10d NC Contact cycles (up to)	20 million
B10d NO Contact cycles (up to)	1 million
Switching frequency	≤ 60/min.
Type of connection	4 screwed connections (M3)
Conductor cross-sections	Single-wire 0.5 – 1.5 mm ² or strand with wire-end ferrule 0.5 – 1.5 mm ²
Cable entry	1 × M20 × 1.5
Protection class	IP66/IP67 according to EN 60529; DIN VDE 0470 T1

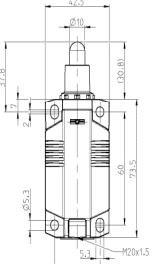
Standards

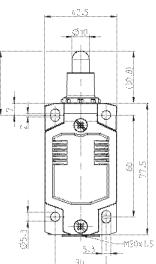
VDE 0660 T211, DIN EN 60947-5-4, IEC 60947-5-4
DIN EN ISO 13849-1, DIN EN ISO 13849-2

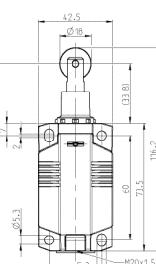
1 Depending on switching system

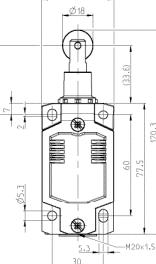


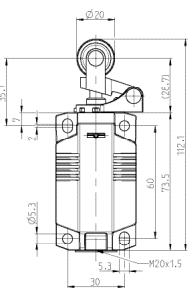
Order details IN73 & MN78

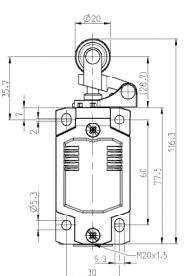
IN73-...SM	Designation	Article number	System	Switching function
	IN73-11 SM	6081000002	Slow action	1 NC / 1 NO
	IN73-S11 SM	6081000001	Snap action	1 NC / 1 NO
	IN73- 20 SM	6081000004	Slow action	2 NC
	IN73- S20 SM	6081000003	Snap action	2 NC
	IN73-02 SM	6081000006	Slow action	2 NO
	IN73-22 SM	6081000005	Snap action	2 NO
	IN73-V11 SM	6081000007	Slow action	1 NC / 1 NO overlapping

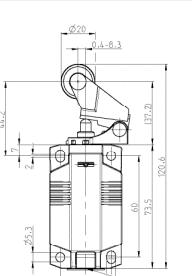
MN78-...SM	Designation	Article number	System	Switching function
	MN78-11 SM	6087000002	Slow action	1 NC / 1 NO
	MN78-S11 SM	6087000001	Snap action	1 NC / 1 NO
	MN78-20 SM	6087000004	Slow action	2 NC
	MN78- S20 SM	6087000003	Snap action	2 NC
	MN78-02 SM	6087000006	Slow action	2 NO
	MN78-22 SM	6087000008	Slow action	2 NC / 2 NO
	MN78-V11 SM	6087000007	Slow action	1 NC / 1 NO overlapping

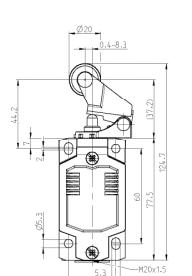
IN73-...RM	Designation	Article number	System	Switching function
	IN73-11 RM	6081000014	Slow action	1 NC / 1 NO
	IN73-S11 RM	6081000013	Snap action	1 NC / 1 NO
	IN73-20 RM	6081000016	Slow action	2 NC
	IN73- S20 RM	6081000015	Snap action	2 NC
	IN73-02 RM	6081000018	Slow action	2 NO
	IN73-22 RM	6081000020	Slow action	2 NC / 2 NO
	IN73-V11 RM	6081000019	Slow action	1 NC / 1 NO overlapping

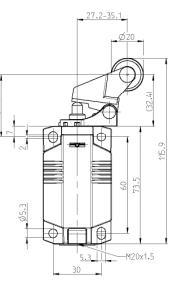
MN78-...RM	Designation	Article number	System	Switching function
	MN78-11 RM	6087000014	Slow action	1 NC / 1 NO
	MN78-S11 RM	6087000013	Snap action	1 NC / 1 NO
	MN78-20 RM	6087000016	Slow action	2 NC
	MN78- S20 RM	6087000015	Snap action	2 NC
	MN78-02 RM	6087000018	Slow action	2 NO
	MN78-22 RM	6087000020	Slow action	2 NC / 2 NO
	MN78-V11 RM	6087000019	Slow action	1 NC / 1 NO overlapping

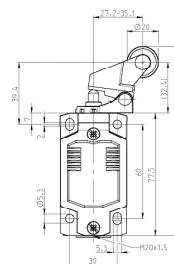
IN73-...HK	Designation	Article number	System	Switching function
	IN73-11 HK	6081000026	Slow action	1 NC / 1 NO
	IN73-S11 HK	6081000025	Snap action	1 NC / 1 NO
	IN73- 20 HK	6081000028	Slow action	2 NC
	IN73- S20 HK	6081000027	Snap action	2 NC
	IN73-02 HK	6081000030	Slow action	2 NO
	IN73-22 HK	6081000032	Snap action	2 NO
	IN73-V11 HK	6081000031	Slow action	1 NC / 1 NO overlapping

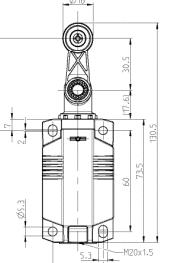
MN78-...HK	Designation	Article number	System	Switching function
	MN78-11 HK	6087000026	Slow action	1 NC / 1 NO
	MN78-S11 HK	6087000025	Snap action	1 NC / 1 NO
	MN78- 20 HK	6087000028	Slow action	2 NC
	MN78- S20 HK	6087000027	Snap action	2 NC
	MN78-02 HK	6087000030	Slow action	2 NO
	MN78-22 HK	6087000032	Slow action	2 NC / 2 NO
	MN78-V11 HK	6087000031	Slow action	1 NC / 1 NO overlapping

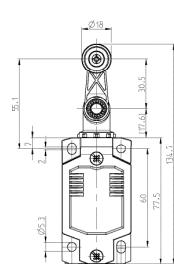
IN73-...DGHK	Designation	Article number	System	Switching function
	IN73-11 DGHK	6081000038	Slow action	1 NC / 1 NO
	IN73-S11 DGHK	6081000037	Snap action	1 NC / 1 NO
	IN73- 20 DGHK	6081000040	Slow action	2 NC
	IN73- S20 DGHK	6081000039	Snap action	2 NC
	IN73-02 DGHK	6081000042	Slow action	2 NO
	IN73-22 DGHK	6081000044	Slow action	2 NC / 2 NO
	IN73-V11 DGHK	6081000043	Slow action	1 NC / 1 NO overlapping

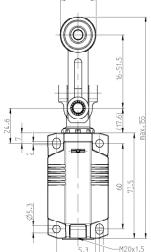
MN78-...DGHK	Designation	Article number	System	Switching function
	MN78-11 DGHK	6087000038	Slow action	1 NC / 1 NO
	MN78-S11 DGHK	6087000037	Snap action	1 NC / 1 NO
	MN78- 20 DGHK	6087000040	Slow action	2 NC
	MN78- S20 DGHK	6087000039	Snap action	2 NC
	MN78-02 DGHK	6087000042	Slow action	2 NO
	MN78-22 DGHK	6087000044	Slow action	2 NC / 2 NO
	MN78-V11 DGHK	6087000043	Slow action	1 NC / 1 NO overlapping

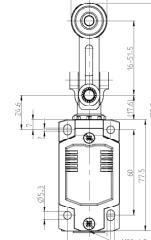
IN73-...DGKK	Designation	Article number	System	Switching function
	IN73-11 DGKK	6081000050	Slow action	1 NC / 1 NO
	IN73-S11 DGKK	6081000049	Snap action	1 NC / 1 NO
	IN73- 20 DGKK	6081000052	Slow action	2 NC
	IN73- S20 DGKK	6081000051	Snap action	2 NC
	IN73-02 DGKK	6081000054	Slow action	2 NO
	IN73-22 DGKK	6081000056	Snap action	2 NO
	IN73-V11 DGKK	6081000055	Slow action	1 NC / 1 NO overlapping

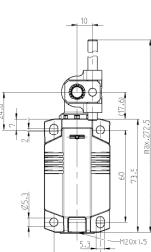
MN78-...DGKK	Designation	Article number	System	Switching function
	MN78-11 DGKK	6087000050	Slow action	1 NC / 1 NO
	MN78-S11 DGKK	6087000049	Snap action	1 NC / 1 NO
	MN78- 20 DGKK	6087000052	Slow action	2 NC
	MN78- S20 DGKK	6087000051	Snap action	2 NC
	MN78-02 DGKK	6087000054	Slow action	2 NO
	MN78-22 DGKK	6087000056	Slow action	2 NC / 2 NO
	MN78-V11 DGKK	6087000055	Slow action	1 NC / 1 NO overlapping

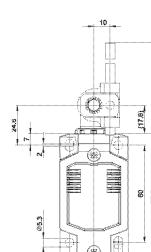
IN73-...AHK	Designation	Article number	System	Switching function
	IN73-11 AHK	6081000062	Slow action	1 NC / 1 NO
	IN73-S11 AHK	6081000061	Snap action	1 NC / 1 NO
	IN73- 20 AHK	6081000064	Slow action	2 NC
	IN73- S20 AHK	6081000063	Snap action	2 NC
	IN73-02 AHK	6081000066	Slow action	2 NO
	IN73-22 AHK	6081000068	Slow action	2 NC / 2 NO
	IN73-V11 AHK	6081000067	Slow action	1 NC / 1 NO overlapping

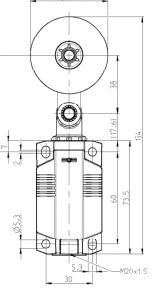
MN78-...AHK	Designation	Article number	System	Switching function
	MN78-11 AHK	6087000062	Slow action	1 NC / 1 NO
	MN78-S11 AHK	6087000061	Snap action	1 NC / 1 NO
	MN78- 20 AHK	6087000064	Slow action	2 NC
	MN78- S20 AHK	6087000063	Snap action	2 NC
	MN78-02 AHK	6087000066	Slow action	2 NO
	MN78-22 AHK	6087000068	Slow action	2 NC / 2 NO
	MN78-V11 AHK	6087000067	Slow action	1 NC / 1 NO overlapping

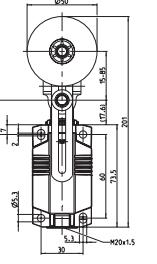
IN73-...AVK	Designation	Article number	System	Switching function
	IN73-11 AVK	6081000074	Slow action	1 NC / 1 NO
	IN73-S11 AVK	6081000073	Snap action	1 NC / 1 NO
	IN73- 20 AVK	6081000076	Slow action	2 NC
	IN73- S20 AVK	6081000075	Snap action	2 NC
	IN73-02 AVK	6081000078	Slow action	2 NO
	IN73-22 AVK	6081000080	Snap action	2 NO
	IN73-V11 AVK	6081000079	Slow action	1 NC / 1 NO overlapping

MN78-...AVK	Designation	Article number	System	Switching function
	MN78-11 AVK	6087000074	Slow action	1 NC / 1 NO
	MN78-S11 AVK	6087000073	Snap action	1 NC / 1 NO
	MN78- 20 AVK	6087000076	Slow action	2 NC
	MN78- S20 AVK	6087000075	Snap action	2 NC
	MN78-02 AVK	6087000078	Slow action	2 NO
	MN78-22 AVK	6087000080	Slow action	2 NC / 2 NO
	MN78-V11 AVK	6087000079	Slow action	1 NC / 1 NO overlapping

IN73-...AHDM	Designation	Article number	System	Switching function
	IN73-11 AHDM	6081000086	Slow action	1 NC / 1 NO
	IN73-S11 AHDM	6081000085	Snap action	1 NC / 1 NO
	IN73- 20 AHDM	6081000088	Slow action	2 NC
	IN73- S20 AHDM	6081000087	Snap action	2 NC
	IN73-02 AHDM	6081000090	Slow action	2 NO
	IN73-22 AHDM	6081000092	Slow action	2 NC / 2 NO
	IN73-V11 AHDM	6081000091	Slow action	1 NC / 1 NO overlapping

MN78-...AHDM	Designation	Article number	System	Switching function
	MN78-11 AHDM	6087000086	Slow action	1 NC / 1 NO
	MN78-S11 AHDM	6087000085	Snap action	1 NC / 1 NO
	MN78- 20 AHDM	6087000088	Slow action	2 NC
	MN78- S20 AHDM	6087000087	Snap action	2 NC
	MN78-02 AHDM	6087000090	Slow action	2 NO
	MN78-22 AHDM	6087000092	Slow action	2 NC / 2 NO
	MN78-V11 AHDM	6087000091	Slow action	1 NC / 1 NO overlapping

IN73-...AHGU RO50	Designation	Article number	System	Switching function
	IN73-11 AHGU Ro50	6081000109	Slow action	1 NC / 1 NO
	IN73-S11 AHGU Ro50	6081000108	Snap action	1 NC / 1 NO
	IN73- 20 AHGU Ro50	6081000110	Slow action	2 NC
	IN73-V11 AHGU Ro50	6081000111	Slow action	1 NC / 1 NO overlapping

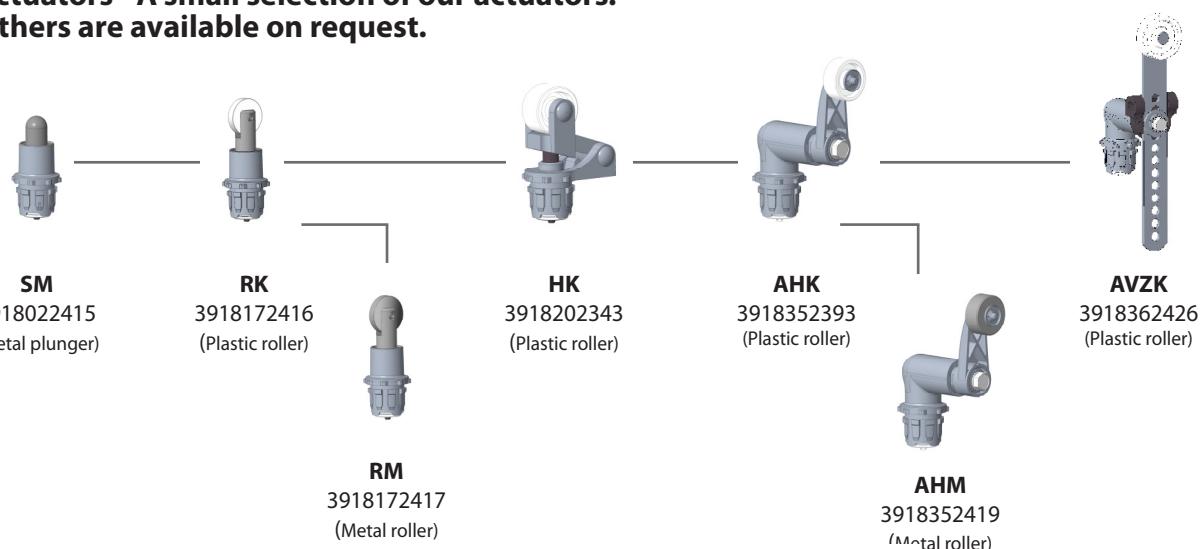
MN78-...AVK	Designation	Article number	System	Switching function
	MN78-11 AVGU Ro50	6081000105	Slow action	1 NC / 1 NO
	MN78-S11 AVGU Ro50	6081000104	Snap action	1 NC / 1 NO
	MN78-20 AVGU Ro50	6081000106	Slow action	2 NC
	MN78-V11 AVGU Ro50	6081000107	Slow action	1 NC / 1 NO overlapping





Order data IN73 & MN78 as component parts

**Actuators - A small selection of our actuators.
Others are available on request.**



Designation	Article number	System	Switching system
IN73-11 M20	6081000113	Slow action	1 NC / 1 NO
IN73-S11 M20	6081000112	Snap action	1 NC / 1 NO
IN73-20 M20	6081000115	Slow action	2 NC
IN73-02 M20	6081000117	Slow action	2 NO
IN73-22 M20	6081000119	Slow action	2 NC / 2 NO
IN73-V11 M20	6081000118	Slow action	1 NC / 1 NO



**Housing with
switching unit**

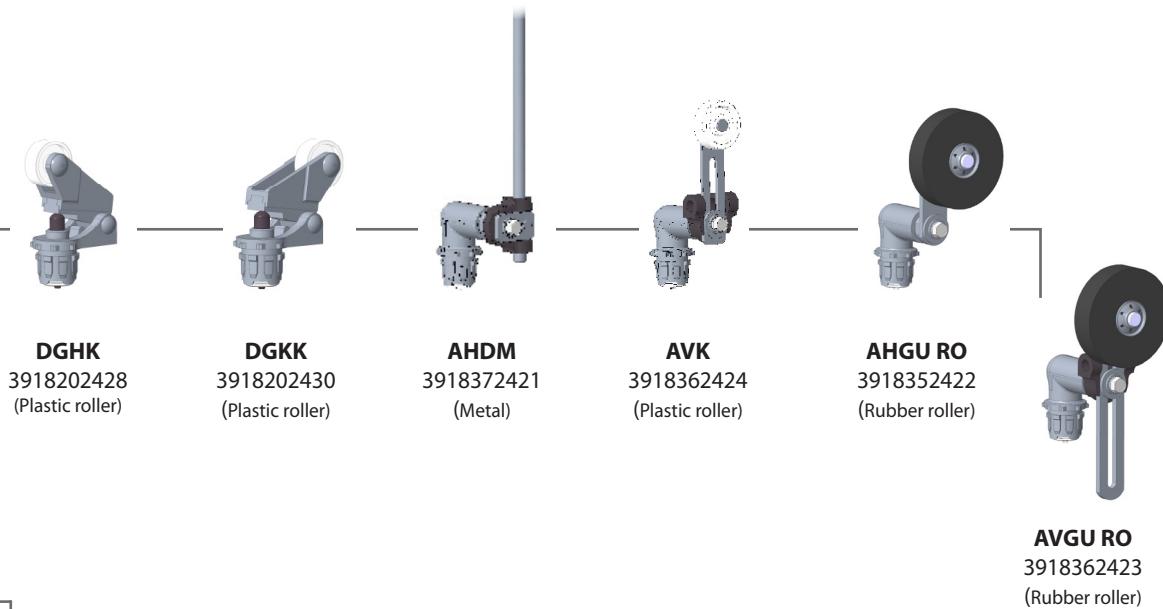


IN73

Designation	Article number	System	Switching system
MN78-11 M20	6087000103	Slow action	1 NC / 1 NO
MN78-S11 M20	6087000102	Snap action	1 NC / 1 NO
MN78-20 M20	6087000105	Slow action	2 NC
MN78-02 M20	6087000107	Slow action	2 NO
MN78-22 M20	6087000109	Slow action	2 NC / 2 NO
MN78-V11 M20	6087000108	Slow action	1 NC / 1 NO



MN78



Switching unit



Bezeichnung	Artikelnummer	System	Schaltfunktion
C14-EB-U1Z	6005101156	Slow-action	Changeover switch
C14-EB-SU1Z	6005151157	Snap-action	Changeover switch
C14-EB-UV1Z	6005301158	Slow-action	Changeover switch with overlapping
C14-EB-A2Z	6005801159	Slow-action	2 NC
C14-EB-SA2Z	6005851160	Snap-action	2 NC

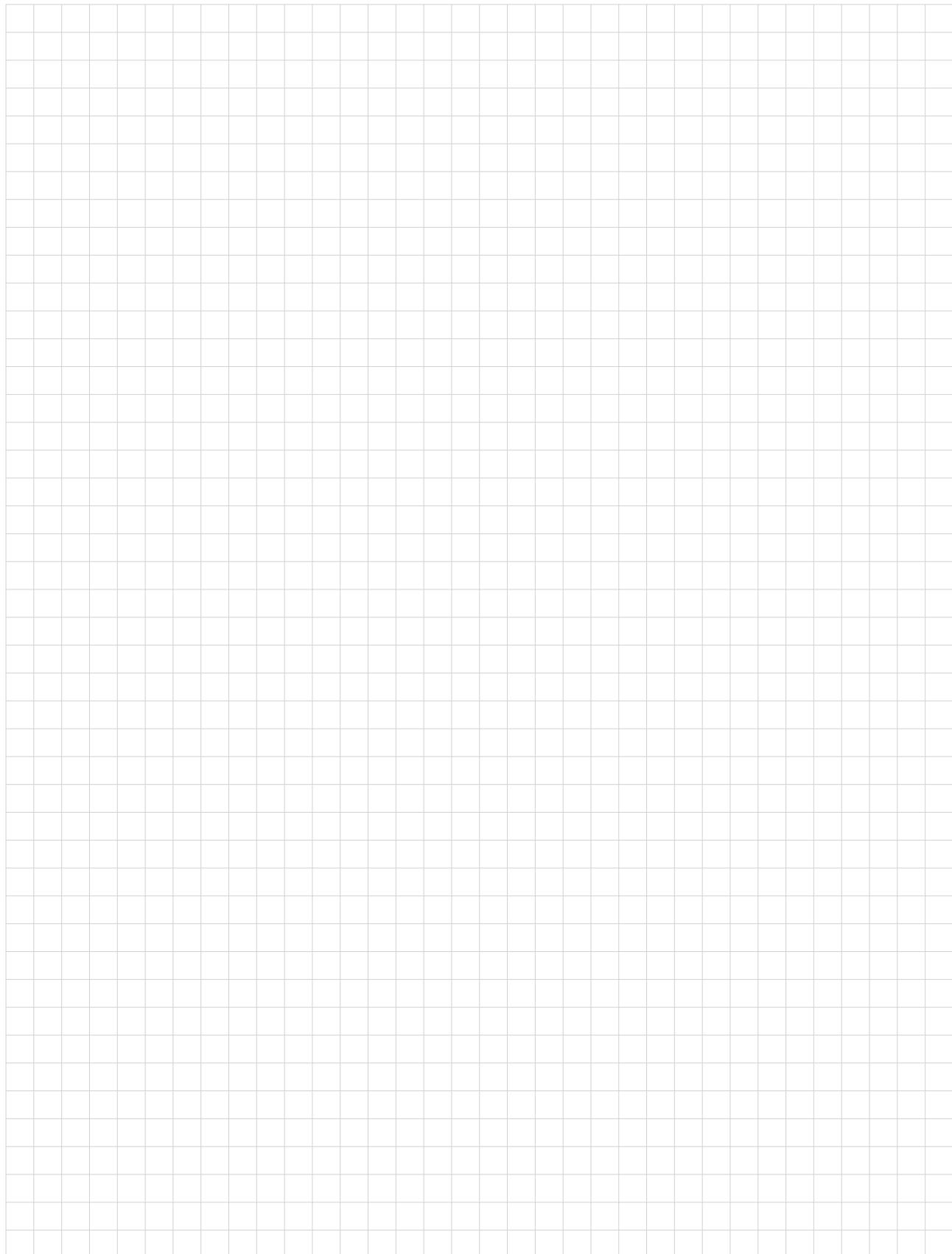
Switching unit

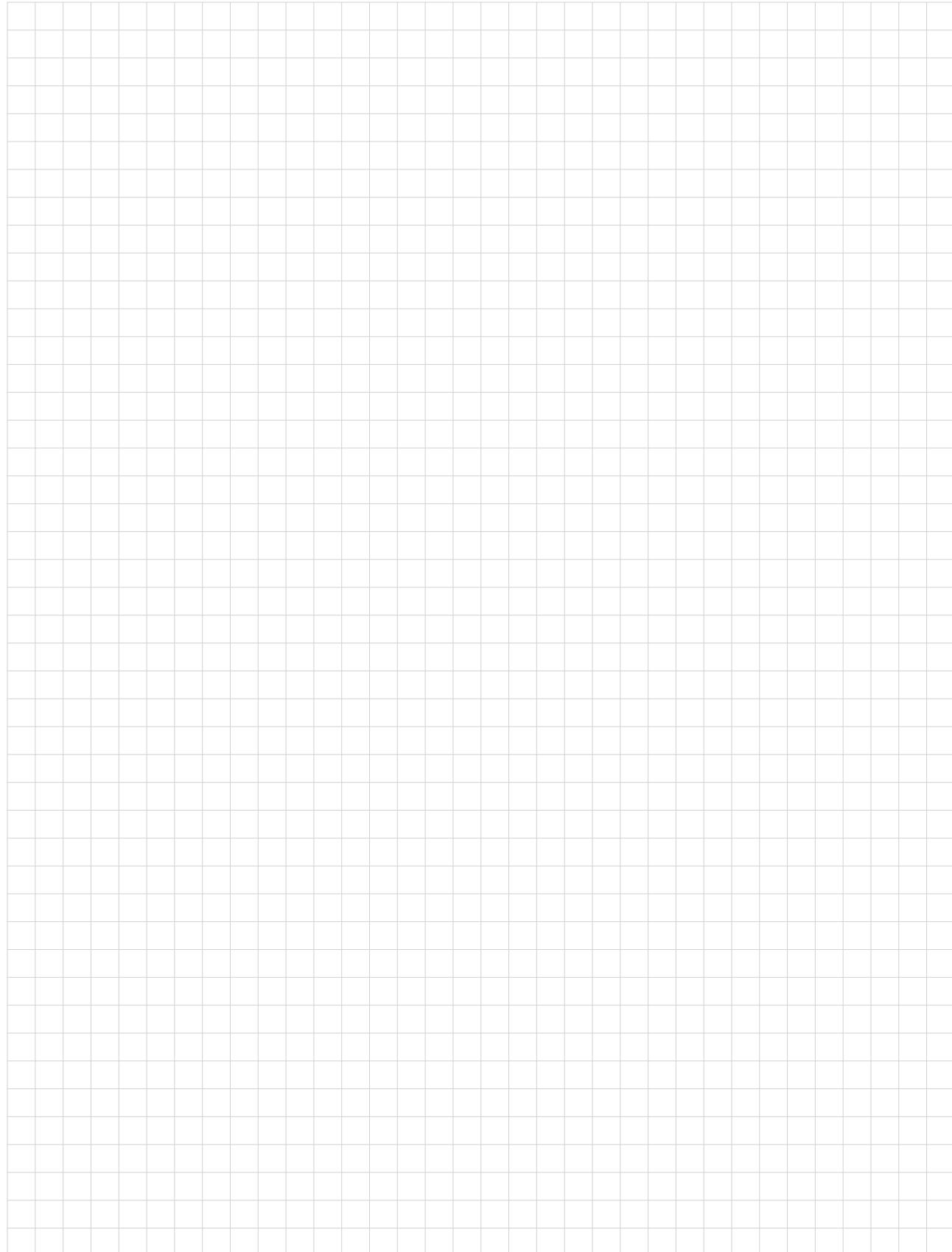


Housing with switching unit and M12 plug connector

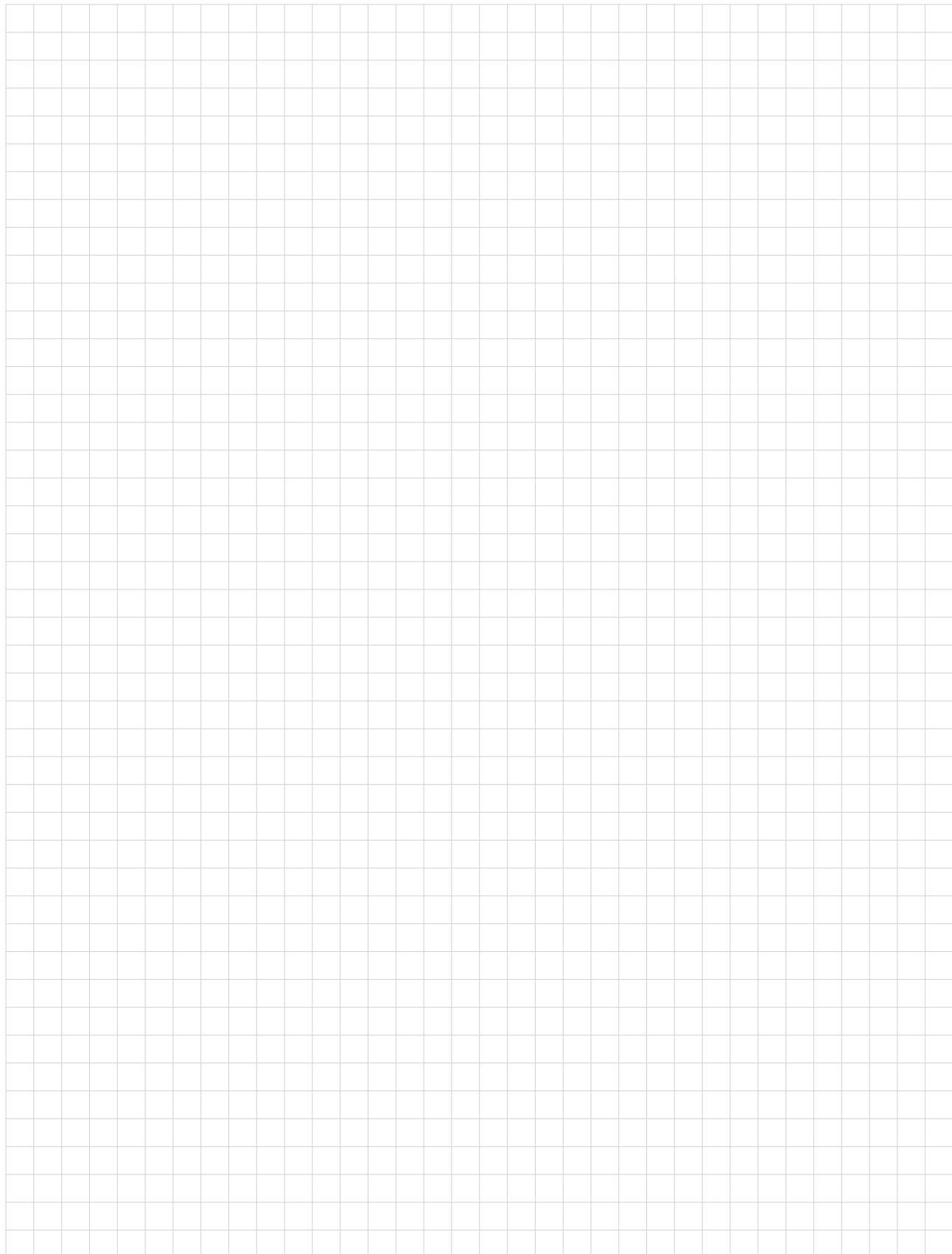


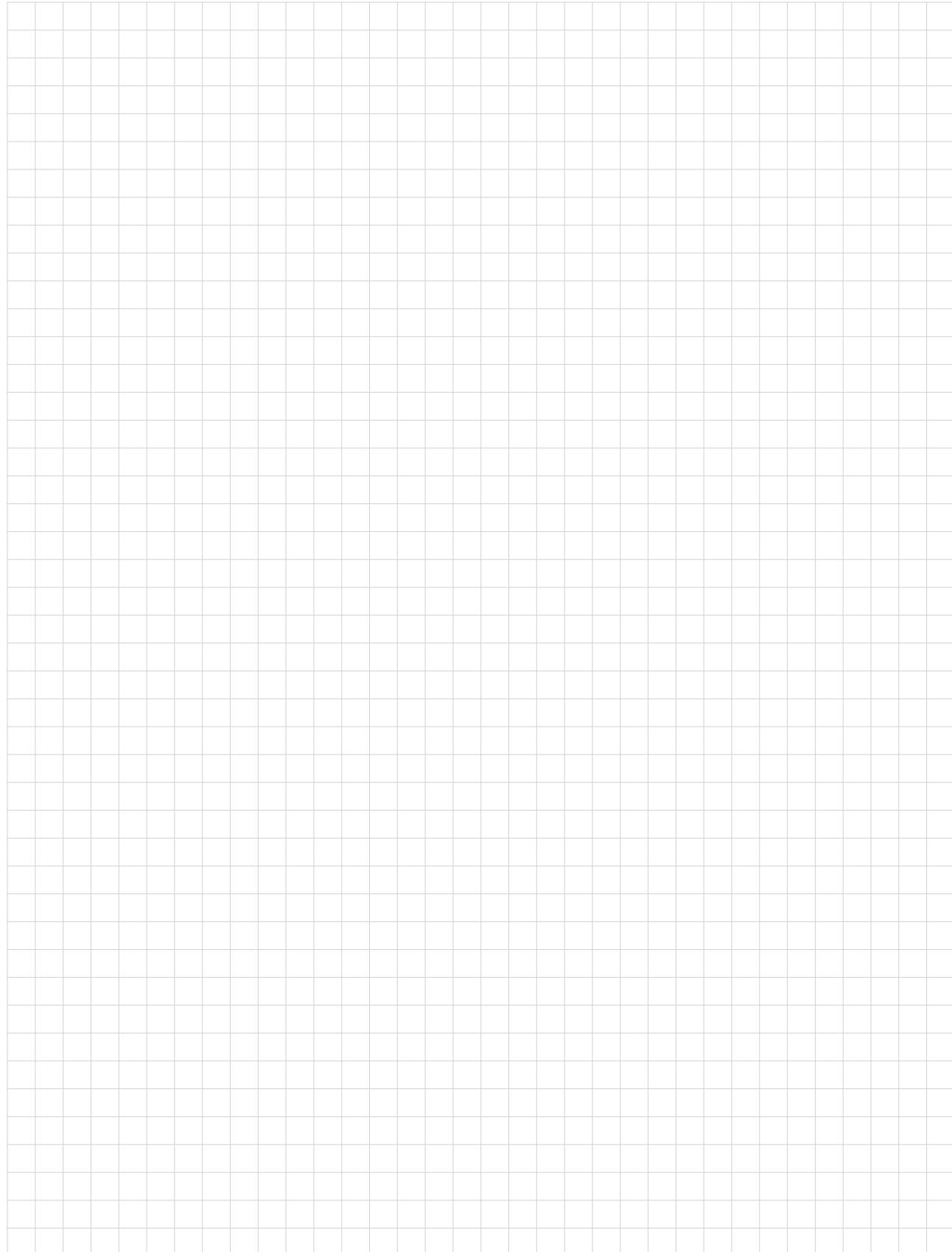
For your notes





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We make
safety happen.



We keep safe
your visions.

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